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December 11, 1997 973-3774

Bucher, Willis, & Ratliff Corporation
7920 Ward Parkway
Kansas City, Missouri 64114-2021

Attn: Mr. John Bednarczyk, P.E.

RE: REPORT ON INVESTIGATORY WORK
DELINEATION OF LEAD IMPACTED SOIL
CASA LINDA GOLF COURSE
JACKSONVILLE NAVAL AIR STATION
JACKSONVILLE, FLORIDA

Gentlemen:

Golder Associates Inc. is pleased to present the attached Report presenting the results of the environmental testing, sampling, and surveying activities recently carried out at the above-noted site. Revisions based on review comments on the Draft Report (provided by NAS Jacksonville and BWR) have been incorporated into this final document.

Golder Associates appreciates the opportunity to provide professional services to BWR. Should any point presented in the report require additional clarification or should any questions arise, please do not hesitate to contact the undersigned.

Very truly yours,

GOLDER ASSOCIATES INC.

Mark A. Swallow, P.E.
Senior Engineer/Associate

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Golder Associates

REPORT ON
DELINEATION OF LEAD IMPACTED SOILS
CASA LINDA GOLF COURSE, NAS JACKSONVILLE
JACKSONVILLE, FLORIDA

Submitted to:

Bucher, Willis & Ratliff Corporation
7920 Ward Parkway
Kansas City, Missouri 64114

DISTRIBUTION:

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2 Copies	Bucher, Willis & Ratliff Corporation
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1.0 INTRODUCTION

Golder Associates Inc. (Golder Associates) was retained by Bucher, Willis & Ratliff Corporation (BWR) to conduct environmental Investigatory Work in conjunction with the proposed expansion of the Casa Linda Golf Course located at Naval Air Station (NAS) Jacksonville, in the City of Jacksonville, Florida. The Investigatory Work primarily involved in situ sampling and testing for the delineation of lead impacted soils in the areas of two Installation Restoration (IR) sites, designated as PSC 22 and PSC 23, and a third area located east of PSC 23.

The Investigatory Work carried out at the Site included:

- the gross delineation of lead impacted soils using a conventional metal detector;
- refining the delineation consistent with a defined "action level" lead concentration using an energy dispersive X-ray fluorescence (XRF) analyzer;
- collecting confirmatory samples for laboratory testing to verify the results of the field testing; and
- surveying and documenting the limits of the delineated areas.

This document presents the results of the investigatory work and includes:

- A statement of the objectives of the Investigatory Work.
- A brief background summary incorporating the following:
  1. a brief description of the Sites;
  2. a brief synopsis of the history of the Sites;
- A list and description of the tasks performed in conjunction with the investigatory work;
- The results of the in situ testing, sampling and laboratory analyses performed, including a comparison between the in situ results and the laboratory results;
- A figure depicting the delineated areas with lead concentrations exceeding the action level;
- A table listing all of the points surveyed and their latitude and longitude coordinates, and
- an appendix containing laboratory data reports.

All of the investigatory work was conducted in accordance with the procedures and methodology presented in the Work Plan, Sampling and Analysis Plan (SAP), and Health and Safety Plan (H&S Plan), dated October 27, 1997, which were previously prepared and submitted to BWR.

2.0 BACKGROUND

2.1 Site Location and Description

NAS Jacksonville is located in the south central portion of Jacksonville in Township 3 South, Range 2 East, Duval County, Florida. The Station is located immediately west of the St. Johns River as indicated on the Key Plan, Figure 1. The Casa Linda Golf Course is located in the central portion of the Air Station. The three subject delineation sites are former shooting ranges located in the northwest quadrant of the golf course, north and east of Akron Road. The three areas consist of two IR sites, designated as PSC 22 and PSC 23, and a third area located east of PSC 23. For the purposes of the investigatory work and this report, the third area, located east of PSC 23, has been designated as PSC 23B, while the original PSC 23 area has been designated as PSC 23A. The locations and layouts of the three sites are shown on Figure 2.

PSC 22 occupies a total area of approximately 10 acres, the center of which is located approximately 1,100 feet west and 700 feet north of the eastern terminus of Akron Road. PSC 23A occupies a total area of approximately two acres and its center is located approximately 250 feet west and 100 feet north of the eastern terminus of Akron Road. PSC 23B occupies a total area of about 5 acres and is located immediately east of the eastern terminus of Akron Road. All of the sites are generally heavily vegetated with mature trees.

2.2 Synopsis of Site History

It is understood that shooting ranges were first operated in all of the subject areas in the early 1940s and that rifle, pistol, and skeet shooting have likely been performed over the years.

2.3 Previous Studies

A screening program was carried out at both IR areas in January of 1997. Analyses conducted on samples collected during the screening program indicated elevated concentrations of antimony, arsenic, and lead in some samples.

3.0 OBJECTIVES

The primary objective of the Investigatory Work was to delineate lead impacted soils in areas which could potentially be encountered during construction activities associated with the proposed expansion of the Casa Linda Golf Course. No excavation, disturbance, or handling of the impacted soils identified will be permitted during construction of the expansion; the only construction activities to be permitted in the delineated areas will be the placement, grading, and compaction of fill.

The nature of exposure to workers engaged in construction activities at the site or golfers during recreational activities is consistent with an industrial exposure scenario. However, to ensure a conservative delineation of impacted soils, for the purposes of the Investigatory Work, lead impacted soils were defined as soils with lead concentrations exceeding the Florida Department of Environmental Protection (FDEP) residential cleanup goal for lead of 500 mg/kg (based on a residential exposure scenario as presented in FDEP's Memorandum of September 29, 1995, entitled "Soil Cleanup Goals for Florida"). FDEP residential cleanup goals of 0.7 and 26 mg/kg were selected as action levels for arsenic and antimony, respectively. FDEP cleanup goals for an industrial exposure scenario are 220, 3.1, and 1,000 mg/kg for antimony, arsenic, and lead, respectively.

Secondary objectives of the Investigatory Work included the generation of data to be used in the preparation of a Procedures Manual which will govern potential construction operating procedures and methods within the delineated areas during the proposed golf course expansion activities.

3.1 Data Quality Objectives

Data Quality Objectives (DQOs) for both the field testing (using the XRF unit) and laboratory testing of verification samples were the action level concentrations presented above. Sampling, sample handling and transport and analytical methods were consistent with those of the Region IV Environmental Compliance Branch Standard Operating Procedures (EBSOP) and Quality Assurance Manual (QAM) (EPA, February 1991).

Field testing was performed using the portable XRF unit. Laboratory analyses were performed using SW846 methods. The project DQOs (action levels) are presented in Table 1 together with the practical quantitation limits (PQLs) for the XRF unit and the relevant SW846 analytical methods for each parameter.

The PQLs for the XRF unit met the project DQO for lead but not the DQOs for antimony and arsenic. Therefore, the objective of the XRF testing for antimony and arsenic was solely to confirm that concentrations were below the respective PQLs. Laboratory analyses were used to evaluate antimony and arsenic concentrations with respect to the specific action levels at selected locations on the established lead impact line.

Laboratory confirmation testing for antimony, arsenic and lead was conducted on selected samples recovered from the site using the analytical methods indicated in Table 1. As indicated in Table 1, the laboratory analyses met the project DQOs for lead and antimony but not for arsenic. The PQL for arsenic (1 mg/kg) was marginally above the DQO (0.7 mg/kg). Hence non detection of arsenic (above the PQL, using the indicated method) was selected as the laboratory DQO.

4.0 PROCEDURE

4.1 General

The tasks undertaken in conducting the Investigatory Work were as follows:

Task	Description
1	Acquire and review background information;
2	Mobilization of field crew;
3	Preliminary reconnaissance/site walk over;
4	Gross delineation of lead impacted soil using metal detector;
5	Establish transects radiating outward from centroids of grossly delineated areas;
6	Conduct in situ testing along transects using XRF unit, document results, and install stakes with test identification number and concentration;
7	Establish and stake 500 mg/kg isoconcentration line (to plus or minus 10 feet maximum) for lead based on XRF test results;
8	Perform XRF testing for antimony and arsenic along the established 500 mg/kg isoconcentration line for lead and document results to confirm concentrations of both antimony and arsenic are below their respective action levels;
9	Collect verification and QA/QC samples for laboratory testing;
10	Survey lead impact line for using GPS and optical survey techniques and record results.

The general scope of work and procedure associated with each of the tasks noted above is discussed in the following sections.

4.2 Task 1 - Acquire and Review Background Information

Prior to initiating field activities, available background information for the subject sites was reviewed. The information reviewed included the analytical data and sampling information presented in the Request for Professional Services document as well as aerial photographs of the subject areas taken in 1968, 1988 and 1995.

4.3 Task 2 - Mobilization

A field crew, consisting of two individuals, was mobilized to the site on October 29, 1997 together with necessary field equipment and sample containers. The field work was conducted on October 29, 30, 31 and November 3 through November 7, 1997.

4.4 Task 3 - Preliminary Reconnaissance/Site Walk Over

Following an initial Health and Safety briefing, the field crew conducted a preliminary reconnaissance of the subject areas to familiarize themselves with relevant site features prior to initiating any field testing. References were made to the 1995 aerial photograph during the walk over. The approximate sampling locations used during the previous study were relocated for subsequent reference.

4.5 Task 4 - Gross Delineation of Lead Impacted Soil

A conventional metal detector was used to grossly delineate the areas of the site with lead shot and/or bullets and/or other metallic objects in the shallow subsurface. Gross delineation was generally conducted along lines radiating radially outward (at incremental compass headings increased sequentially by approximately 45 degrees) from the previous sampling locations which indicated the highest lead concentrations. The lines extended outward until no further indications of metallic objects, consistent with lead shot, were registered by the metal detector. The ultimate limits of these areas were roughly delineated in the field with wood stakes for subsequent reference.

4.6 Task 5 - Establish Transects From Centers of Grossly Delineated Areas

Following the completion of Task 4, formal transect lines were established radiating outward from the designated centers. As with the gross delineation, eight transect lines were established at each location radiating radially outward at incremental compass headings of approximately 45 degrees. Two exceptions to this were the small area at the south end of PSC 22, where only two intersecting transect lines were established, and area PSC 23B, where five transect lines were established. The transect lines were used as guides for the subsequent in situ testing activities conducted in conjunction with Task 6. The locations of the points of origin of the transect lines are indicated on Figure 2.

4.7 Task 6 - Conduct In Situ Testing

Commencing on October 29, 1997, in situ testing was carried out along the transect lines beginning at the points of origin indicated on Figure 2. At the first in situ test location, varying degrees of ground preparation were evaluated by conducting a series of tests at the same location but with sequentially increasing depths of preparation. Initial preparation consisted of scraping loose surface debris from the test location. Subsequently, deeper scraping was conducted at the same location and tests were performed at greater depths to a maximum depth of about four inches. The optimal preparation depth (selected as the depth which produced the highest reading on the XRF unit) was approximately 1 inch.

Once the optimal preparation depth was selected, it was used for all subsequent testing. Testing proceeded along the established transect lines moving radially outward from the points of origin. Sequential test locations were spaced at approximate 100-foot intervals. At each test location, a wood stake was installed bearing an inscription denoting the test number and the measured lead concentration. All test numbers and the corresponding lead concentrations were documented in the field as the tests were completed. The test locations were assigned unique alpha-numeric identification codes as follows: the first component was the primary investigation area (PSC 22 or PSC 23), the second component was the sub area (A, B, or C), the third component was the transect line number (typically 1 to 8, with line 1 being the transect extending north from the origin and the remaining lines numbered sequentially in a clockwise rotation), and the fourth and

final component was the approximate distance (in feet) from the origin along the transect line. Hence a test conducted on the easterly oriented transect (line 3) of sub area A of PSC 22, located 100 feet from the origin, would be designated as: PSC 22/A/3/100.

All in situ testing using the XRF unit was conducted in accordance with the manufacturers recommendations

4.8 Task 7 - Establish and Stake Lead Impact Delineation Line

Once measured lead concentrations transitioned from above to below the action level (500 mg/kg) at two sequential locations along the transect lines, the relevant 100-foot interval was divided in half such that a maximum distance of 50 feet separated two consecutive tests. The intersection of the transect line and the lead impact delineation line was defined as the test location (either the 50-foot location or the original more distal 100-foot location) at which the concentration of lead in soil was less than 500 mg/kg. This location was staked and the measured lead concentration documented. To reduce the potential for identifying areas with erroneously low lead concentrations, a total of three separate tests were conducted (within an area of about three feet by three feet) at each location where sub-action level lead concentrations were first measured; the highest of the three test values was subsequently assigned to that particular location.

4.9 Task 8 - Perform XRF Testing for Antimony and Arsenic

Once the lead impact line was established on a given transect, in situ testing was conducted for antimony and arsenic at that location using the XRF unit to confirm that concentrations for these constituents were below their respective PQLs. Antimony and arsenic concentrations were below the XRF unit's PQL at all in situ test locations.

4.10 Task 9 - Collect Verification and QA/QC Samples

Soil samples for verification analyses were collected from selected XRF test locations on the established lead impact line. The sample locations are shown on Figure 2. At these selected locations, in situ testing was conducted for all three constituents of potential concern using the

XRF unit prior to sampling. The samples were collected from the precise footprint of the XRF unit's probe. Four verification samples were collected along the established lead delineation line at PSC 22, two verification samples were collected from PSC 23A, and three verification samples were collected from the established lead delineation line at PSC 23B. In addition, one verification sample was collected from a test location within the interior of PSC 22 which exhibited a very high lead concentration based on the XRF testing.

All sampling, sample handling, and transport activities performed in the field were conducted in accordance with Golder Associates' FDEP-approved Comprehensive Quality Assurance Plan (CompQAP No. 910019G) and USEPA Region IV Environmental Compliance Branch Standard Operating Procedures (EBSOP) and Quality Assurance Manual (QAM) (EPA, February 1991). Soil samples were collected and prepared using decontaminated plastic shovels and mixing bowls. Following removal, the excavated soil was placed in the mixing bowl and homogenized by mixing until visually and texturally uniform. The prepared sample was then transferred to clean sample containers provided by the analytical laboratory.

Quality assurance samples consisted of a single equipment rinsate blank, two trip blanks (one per shuttle), and two temperature blanks (also one per shuttle).

All samples were placed in shuttles and chilled to 4 degrees Celsius pending transport to the analytical laboratory via overnight courier. Prior to shipment, the shuttles were securely sealed and a custody seal applied. Chain-of-Custody forms were completed and shipped with the shuttles.

Laboratory analytical testing was conducted by Savannah Laboratories & Environmental Services Inc. at their Tallahassee, Florida facility. All testing conducted by Savannah Laboratories was conducted in accordance with their FDEP-approved Comprehensive Quality Assurance Plan (CompQAP No. 890142G). The analytical methods used and the respective PQLs for the constituents of potential concern are indicated in Table 1.

4.11 Task 10 - Survey Lead Delineation Line

After the lead delineation line was established and staked, the relevant stake locations were surveyed using a combination of optical surveying and Global Positioning System (GPS) methods. Each stake on the lead line was located to an accuracy of within approximately plus or minus three feet. Latitude and longitude coordinates of each stake were determined and recorded. In addition, permanent reference points were established at the points of origin of each set of transect lines. The reference points consisted of 2-foot long sections of 0.5-inch diameter steel reinforcing bar, driven into the ground such that approximately 1-inch protruded above the ground surface. Witness stakes were driven adjacent to the reinforcing bars to facilitate future location.

5.0 RESULTS

5.1 In Situ Test and Laboratory Sample Locations

The distributions of in situ test locations for all three areas investigated are shown on Figure 2 together with the points of origin for the transect lines. The numbering scheme for the transect lines is indicated on Figure 3. A total of 95 locations were tested using the XRF unit. Of these, 64 were located at PSC 22, 11 were located at PSC 23A, and 20 were located at PSC 23B.

The locations at which laboratory samples were collected are also show on Figure 2. A total of ten soil samples were collected: five from PSC 22; two from PSC 23A, and three from PSC 23B.

5.2 XRF Lead Concentrations and Delineated Areas

The lead concentrations measured in the field using the XRF unit are shown on Figure 2 and are summarized in Table 2. The highest concentration measured using the XRF unit was 18,520 mg/kg at a location in the north central portion of PSC 22. During the field testing, major variations were noted in lead concentration over relatively small areas; possibly due to the "shadowing" effects of vegetation present at the time that skeet shooting was active.

The areas delineated as containing impacted soils with lead concentrations exceeding 500 mg/kg are shown on Figure 2. Virtually all of the northern section of PSC 22 (large rectangle) exhibited lead concentrations exceeding the action level, while only relatively small localized portions of PSC 23A and PSC 23B exhibited lead concentrations above the target value.

5.3 Comparison of XRF and Laboratory Lead Concentrations

The results of the laboratory analytical testing for lead are summarized in Table 3 along with the corresponding results for the XRF unit for comparison. For eight of the ten verification samples collected, the XRF lead value, measured in the field, agrees very well with the laboratory value. For the remaining two samples (PSC 22/B/1/165 and PSC 22/B/4/350), a significant difference exists between the XRF value and the laboratory value. The probable

reason for this apparent discrepancy is sample heterogeneity due to the nature of the lead source material. Lead in soil at the site is present in discrete balls of shot. Given the relatively small sample sizes involved, small variations in the distribution of shot within a given sample could result in significant changes in measured lead concentration.

5.4 Adjustment of Lead Delineation Line Based on Laboratory Test Results

Based on the laboratory lead concentrations reported for samples PSC 22/B/1/165 and PSC 22/B/4/350 (both of which were higher than the respective concentrations measure in situ using the XRF unit) and the rate of outward decrease in lead concentration per linear foot along the transect lines, the delineated area for lead impacted soil was expanded locally in the vicinity of the relevant test/samples locations. These adjustments are shown on Figure 2. The adjusted delineated limits were conservatively estimated based on the FDEP residential clean-up goal for lead which is 500 mg/kg. Based on the results of the field and laboratory testing, lead concentrations beyond the adjusted delineated limits in all areas should be well below the FDEP industrial cleanup goal for lead of 1,000 mg/kg .

5.5 XRF and Laboratory Results for Antimony and Arsenic

The results of the laboratory analytical testing for antimony and arsenic are summarized in Table 3 along with the corresponding results for the XRF unit for comparison. For all of the XRF testing, the measured concentrations of antimony and arsenic were below the practical quantitation limits for the device (45 mg/kg and 25 mg/kg for antimony and arsenic, respectively). The laboratory testing conducted on samples collected from the delineated lead impact line (based on the XRF test results) indicated no exceedances of the action level for antimony (26 mg/kg) but exceedances of the action level for arsenic (0.7 mg/kg) were detected in five of the nine samples analyzed. Arsenic concentrations in these samples ranged from 1.1 to 5.1 mg/kg.

5.6 Estimated Arsenic Delineation Line

The results of the laboratory testing indicate a general relationship between lead concentration and arsenic concentration. When plotted on a log-log scale, the data indicate that arsenic concentrations below the action level (0.7 mg/kg) are typically present at lead concentrations of

less than about 75 mg/kg. The plotted data are shown on the graph included with Table 5. Based on this general relationship, and an outward linear extrapolation of the lead concentration data near the limits of the delineated areas, an estimated delineation for arsenic impacts was developed. The estimated limits of arsenic impacted soil (i.e. arsenic concentrations greater than 0.7 mg/kg) are shown on Figure 2. The indicated limits correspond to an extrapolated 75 mg/kg lead isoconcentration line. The estimated limits for arsenic impacted soil were conservatively based on the FDEP residential clean-up goal for arsenic which is 0.7 mg/kg. Based on the results of the field and laboratory testing, arsenic concentrations beyond the estimated limits in all areas should be well below the FDEP industrial cleanup goal for arsenic of 3.1 mg/kg .

It should be noted that the indicated limits of arsenic impacted soil are estimates only and, although based on reasonable assumptions, were not established from actual analytical data for arsenic in soil.

5.7 Survey Results

The locations of the stations on the transect lines corresponding to the limits of lead impacted soil (based on the results of the XRF testing) were surveyed as were the points or origin for the transect lines. Permanent reference points were established at the points of origin. The identification numbers and surveyed locations of these points are shown on Figure 3. The latitude and longitude coordinates for each of the points are summarized in Table 4. The surveyed locations should be considered accurate to within approximately plus or minus 3 feet.

6.0 SIGNATURE PAGE

We trust that this Report adequately summarizes the methodology and results of the activities undertaken in conjunction with the delineation of lead impacted soils at the Casa Linda Golf Course. Should any point require additional clarification or should any questions arise, please do not hesitate to contact the undersigned.

GOLDER ASSOCIATES INC.

Mark A. Swallow, P.E.
Senior Engineer/Associate

MAS/mas

December 1997 973-3774

TABLE 1
SUMMARY OF CONSTITUENTS OF CONCERN, ACTION LEVELS, ANALYTICAL METHODS, AND PQLs

Delineation of Lead Impacted Soils
Casa Linda Golf Course
NAS Jacksonville
Jacksonville, Florida

Parameter	Project Action Levels (mg/kg)	XRF Unit Source Soils	XRF Unit PQL (mg/kg)	SW846 Laboratory Method Number	SW846 Laboratory PQL (mg/kg)
Antimony	26	Am-241	45	6010 (3050)	5.0
Arsenic	0.7	Cd-109	25	6010 (3050)	1.0
Lead	500	Cd-109	15	6010 (3050)	5.0

TABLE 2
RESULTS OF IN SITU TESTING USING XRF UNIT
DELINEATION OF IMPACTED SOILS

Casa Linda Golf Course
NAS Jacksonville
Jacksonville, Florida

Sample Identification				XRF Parameter Concentrations (mg/kg)		
Area	Sub-Area	Line	Distance (ft	Antimony	Arsenic	Lead
PSC-22	A	0	0	NA	NA	7350
PSC-22	A	1	100	BPQL	BPQL	238
PSC-22	A	2	100	NA	NA	996
PSC-22	A	2	150	BPQL	BPQL	173
PSC-22	A	2	200	NA	NA	179
PSC-22	A	3	100	NA	NA	6980
PSC-22	A	3	200	NA	NA	18520
PSC-22	A	3	300	NA	NA	2711
PSC-22	A	3	350	NA	NA	887
PSC-22	A	3	375	BPQL	BPQL	330
PSC-22	A	4	135	NA	NA	12980
PSC-22	A	4	200	NA	NA	2434
PSC-22	A	4	300	NA	NA	16120
PSC-22	A	5	100	NA	NA	15340
PSC-22	A	5	200	NA	NA	8840
PSC-22	A	5	300	NA	NA	1049
PSC-22	A	5	400	NA	NA	567
PSC-22	A	5	425	BPQL	BPQL	122
PSC-22	A	6	100	NA	NA	2102
PSC-22	A	6	300	NA	NA	6200
PSC-22	A	6	350	NA	NA	738
PSC-22	A	6	400	BPQL	BPQL	178
PSC-22	A	7	100	NA	NA	3210
PSC-22	A	7	200	NA	NA	665
PSC-22	A	7	250	NA	NA	742
PSC-22	A	7	300	BPQL	BPQL	137
PSC-22	A	8	100	NA	NA	229
PSC-22	A	8	50	BPQL	BPQL	452
PSC-22	B	0	0	NA	NA	1003
PSC-22	B	1	100	NA	NA	1545
PSC-22	B	1	150	NA	NA	709
PSC-22	B	1	165	BPQL	BPQL	383
PSC-22	B	2	100	NA	NA	868
PSC-22	B	2	175	NA	NA	698
PSC-22	B	2	200	BPQL	BPQL	197
PSC-22	B	3	100	NA	NA	625
PSC-22	B	3	200	NA	NA	699
PSC-22	B	3	250	BPQL	BPQL	66
PSC-22	B	3	300	NA	NA	446
PSC-22	B	4	100	NA	NA	2703
PSC-22	B	4	200	NA	NA	3030
PSC-22	B	4	300	NA	NA	648
PSC-22	B	4	350	BPQL	BPQL	123
PSC-22	B	4	400	NA	NA	133
PSC-22	B	5	100	NA	NA	552
PSC-22	B	5	200	NA	NA	2245
PSC-22	B	5	250	NA	NA	599
PSC-22	B	5	300	BPQL	BPQL	202
PSC-22	B	6	100	NA	NA	2123
PSC-22	B	6	200	NA	NA	516
PSC-22	B	6	300	NA	NA	646
PSC-22	B	6	400	NA	NA	903
PSC-22	B	6	450	BPQL	BPQL	208
PSC-22	B	7	100	NA	NA	2749
PSC-22	B	7	200	NA	NA	3350
PSC-22	B	7	300	NA	NA	14480
PSC-22	B	8	100	NA	NA	3490
PSC-22	B	8	200	NA	NA	2262
PSC-22	B	8	300	NA	NA	1900
PSC-22	B	8	350	BPQL	BPQL	107

Notes: - BPQL = Below XRF Practical Quantitation Limit
- NA = Not Analyzed

TABLE 2
RESULTS OF IN SITU TESTING USING XRF UNIT
DELINEATION OF IMPACTED SOILS

Casa Linda Golf Course
NAS Jacksonville
Jacksonville, Florida

Sample Identification				XRF Parameter Concentrations (mg/kg)		
Area	Sub-Area	Line	Distance (ft	Antimony	Arsenic	Lead
PSC-22	C	1	100	NA	NA	88
PSC-22	C	2	150	BPQL	BPQL	96
PSC-22	C	3	200	NA	NA	50
PSC-22	C	4	150	BPQL	BPQL	33
PSC-23	A	0	0	NA	NA	1271
PSC-23	A	1	50	BPQL	BPQL	BPQL
PSC-23	A	2	50	NA	NA	836
PSC-23	A	2	100	BPQL	BPQL	31
PSC-23	A	3	50	BPQL	BPQL	29
PSC-23	A	3	100	NA	NA	49
PSC-23	A	4	50	BPQL	BPQL	81
PSC-23	A	5	50	BPQL	BPQL	28
PSC-23	A	6	50	BPQL	BPQL	62
PSC-23	A	7	50	BPQL	BPQL	29
PSC-23	A	8	50	BPQL	BPQL	26
PSC-23	B	0	0	NA	NA	198
PSC-23	B	1	50	NA	NA	28
PSC-23	B	1	100	NA	NA	68
PSC-23	B	1	200	NA	NA	15
PSC-23	B	1	300	NA	NA	41
PSC-23	B	2	100	BPQL	BPQL	47
PSC-23	B	2	150	BPQL	BPQL	34
PSC-23	B	2	200	NA	NA	1151
PSC-23	B	2	300	NA	NA	571
PSC-23	B	2	350	BPQL	BPQL	114
PSC-23	B	3	50	NA	NA	28
PSC-23	B	3	95	NA	NA	142
PSC-23	B	3	150	NA	NA	52
PSC-23	B	3	250	BPQL	BPQL	56
PSC-23	B	3	350	NA	NA	62
PSC-23	B	4	100	NA	NA	267
PSC-23	B	4	200	NA	NA	13
PSC-23	B	5	50	NA	NA	28
PSC-23	B	5	150	NA	NA	262
PSC-23	B	5	200	BPQL	BPQL	68

Notes: - BPQL = Below XRF Practical Quantitation Limit
- NA = Not Analyzed

TABLE 3
COMPARISON OF XRF FIELD RESULTS AND LABORATORY ANALYTICAL RESULTS
DELINEATION OF IMPACTED SOILS

Casa Linda Golf Course
NAS Jacksonville
Jacksonville, Florida

Sample Identification				Parameter Concentrations (mg/kg)					
				Antimony		Arsenic		Lead	
Area	Sub-Area	Line	Distance (ft	XRF	Laboratory	XRF	Laboratory	XRF	Laboratory
PSC-22	A	6	400	BPQL	ND	BPQL	1.6	178	110
PSC-22	A	8	50	BPQL	5J	BPQL	3.5	452	470
PSC-22	A	4	300	NA	1200	NA	310	16120	22000
PSC-22	B	1	165	BPQL	ND	BPQL	5.1	383	1300
PSC-22	B	4	350	BPQL	ND	BPQL	ND	123	580
PSC-23	A	2	100	BPQL	ND	BPQL	ND	31	9.8
PSC-23	A	6	50	BRQL	ND	BPQL	ND	62	150
PSC-23	B	2	100	BPQL	ND	BPQL	ND	47	53
PSC-23	B	3	250	BPQL	ND	BPQL	1.1	56	48
PSC-23	B	5	200	BPQL	ND	BPQL	2.1	68	81

Notes: - ND = Not Detected in Laboratory Sample
- BPQL = Below XRF Practical Quantitation Limit

TABLE 4
LATITUDE AND LONGITUDE COORDINATES OF SURVEYED TEST LOCATIONS DELINEATION OF IMPACTED SOILS

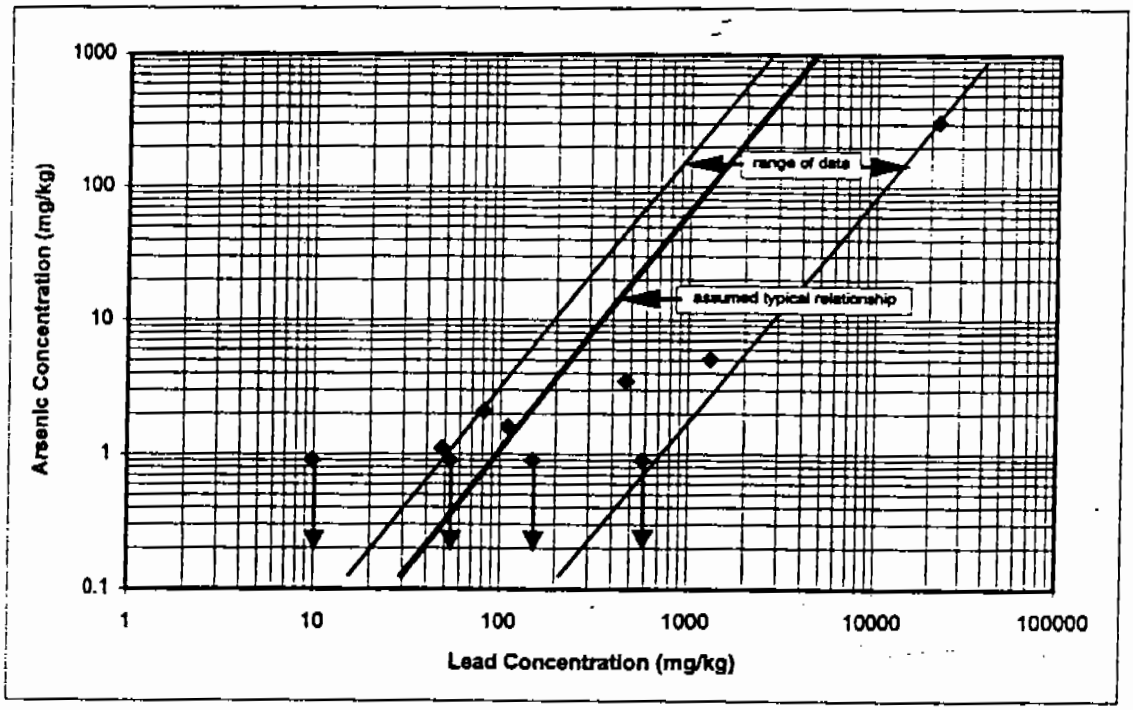
Casa Linda Golf Course
NAS Jacksonville
Jacksonville, Florida

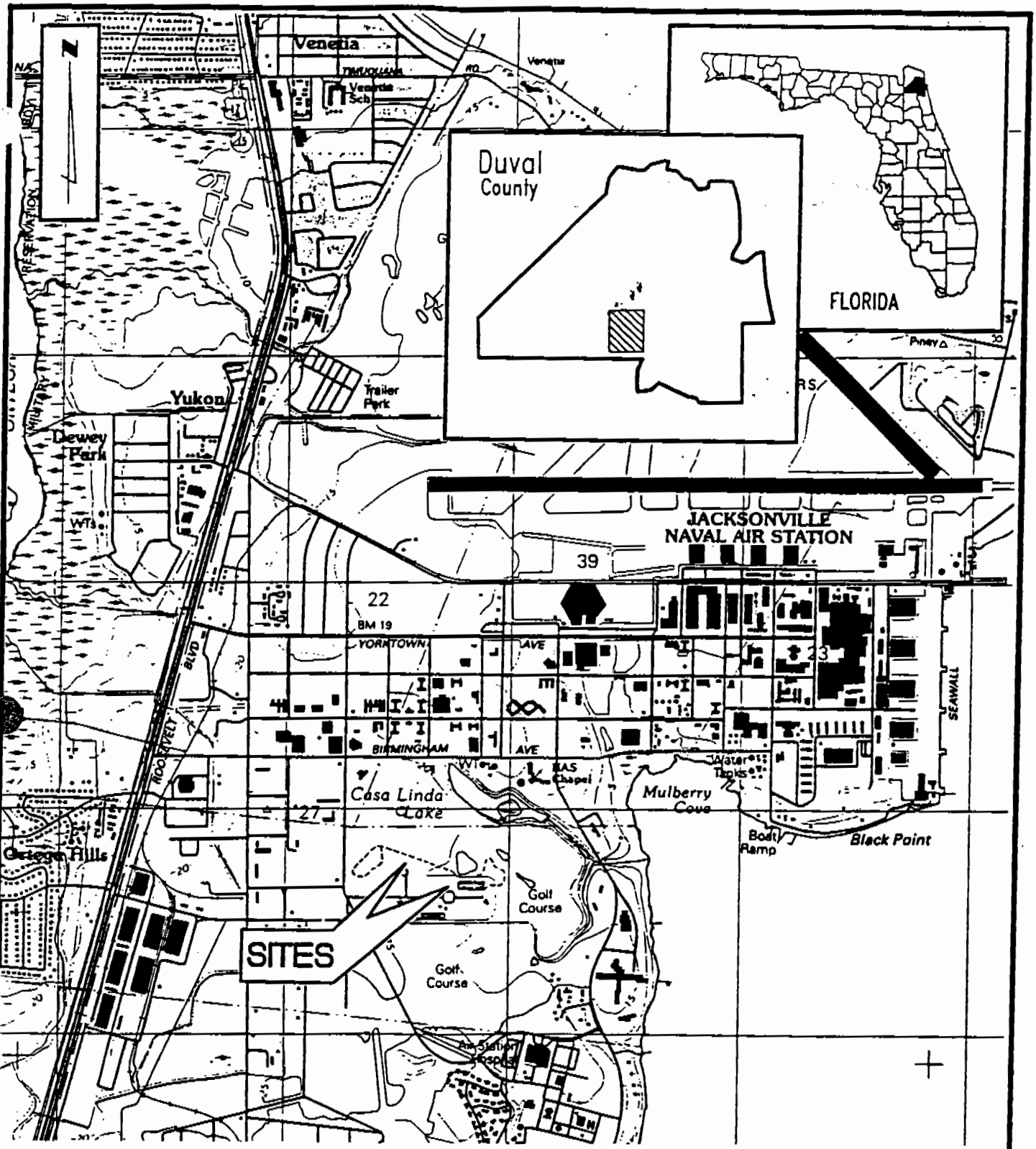
Sample Identification				Latitude			Longitude		
Area	Sub-Area	Line	Distance (ft)	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
PSC-22	A	0	0	30	13	3.19	81	41	28.15
PSC-22	A	1	100	30	13	4.16	81	41	28.41
PSC-22	A	2	150	30	13	4.45	81	41	27.25
PSC-22	A	3	375	30	13	4.03	81	41	24.00
PSC-22	A	5	425	30	12	59.08	81	41	27.06
PSC-22	A	6	400	30	13	7.16	81	41	30.56
PSC-22	A	7	300	30	13	2.52	81	41	31.47
PSC-22	A	8	50	30	13	3.45	81	41	28.63
PSC-22	B	0	0	30	13	1.28	81	41	20.79
PSC-22	B	1	165	30	13	2.92	81	41	20.53
PSC-22	B	2	200	30	13	2.47	81	41	19.98
PSC-22	B	3	300	30	13	0.87	81	41	17.41
PSC-22	B	4	350	30	12	58.51	81	41	18.4
PSC-22	B	5	300	30	12	58.33	81	41	20.31
PSC-22	B	6	450	30	12	58.61	81	41	16.71
PSC-22	B	8	350	30	13	4.05	81	41	23.18
PSC-23	A	0	0	30	12	54.29	81	41	14.95
PSC-23	A	1	50	30	12	52.79	81	41	14.95
PSC-23	A	2	100	30	12	52.99	81	41	14.15
PSC-23	A	3	50	30	12	54.29	81	41	14.38
PSC-23	A	4	50	30	12	53.94	81	41	14.55
PSC-23	A	5	50	30	12	53.79	81	41	14.95
PSC-23	A	6	50	30	12	53.94	81	41	15.35
PSC-23	A	7	50	30	12	54.29	81	41	15.52
PSC-23	A	8	50	30	12	54.64	81	41	15.35
PSC-23	B	0	0	30	12	52.54	81	41	11.81
PSC-23	B	2	150	30	12	53.63	81	41	10.65
PSC-23	B	2	350	30	12	55.08	81	41	9.10

TABLE 5
TYPICAL RELATIONSHIP BETWEEN LEAD AND ARSENIC CONCENTRATIONS DELINEATION OF IMPACTED SOILS

Casa Linda Golf Course
NAS Jacksonville
Jacksonville, Florida

Sample Identification				Laboratory Concentrations (mg/kg)	
Area	Sub-Area	Line	Distance (ft	Lead	Arsenic
PSC-22	A	6	400	110	1.6
PSC-22	A	8	50	470	3.5
PSC-22	A	4	300	22000	310
PSC-22	B	1	165	1300	5.1
PSC-22	B	4	350	580	<1
PSC-23	A	2	100	9.8	<1
PSC-23	A	6	50	150	<1
PSC-23	B	2	100	53	<1
PSC-23	B	3	250	48	1.1
PSC-23	B	5	200	81	2.1





REFERENCE:
USGS TOPOGRAPHIC MAP, 7.5 MIN. SERIES, QUADRANGLE MAP:
ORANGE PARK QUADRANGLE, DUVAL COUNTY, FLORIDA

SCALE IN FEET

0 2000 4000

Golder Associates

JACKSONVILLE, FLORIDA

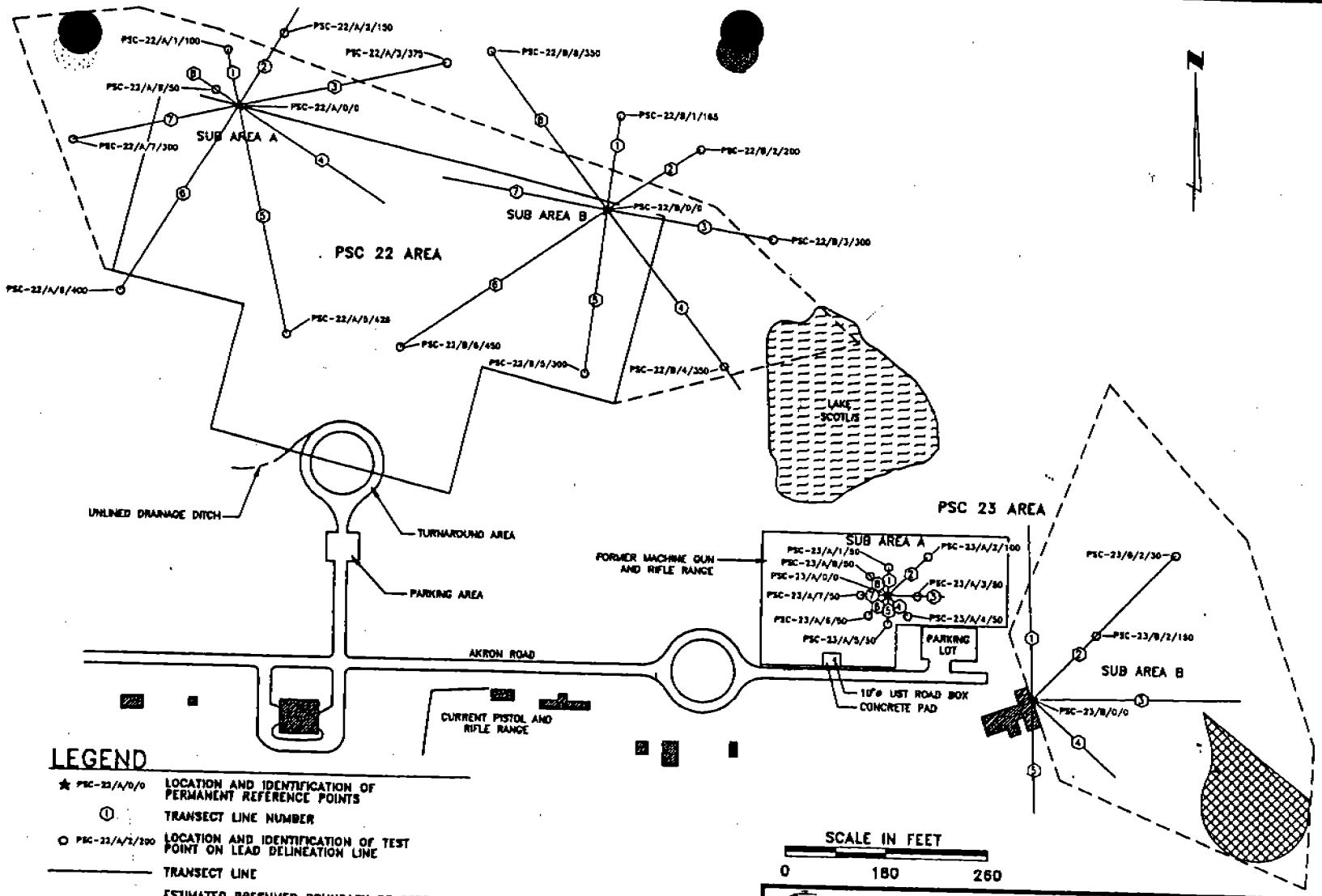
TITLE

SITE LOCATION MAP

CLIENT/PROJECT

BWR/NAS JAX/FL

DRAWN	TRG	DATE	10/8/97	JOB NO.	973-3774
CHECKED		SCALE	AS SHOWN	DWG NO.	3774 REV. NO.
REVIEWED		FILE NO.	973-3774	SUBTITLE	FIGURE NO. 1



LEGEND

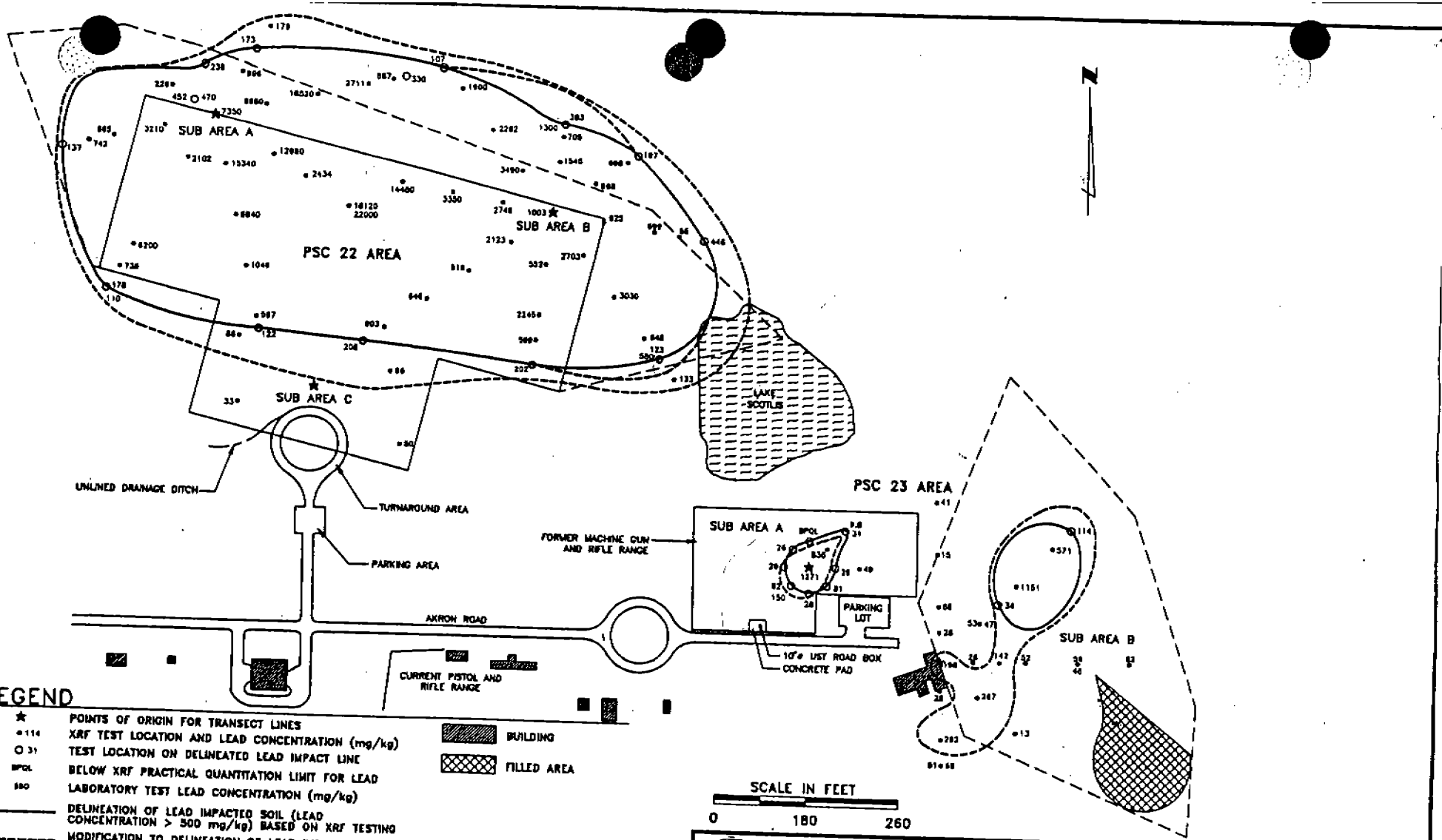
- ★ PSC-22/A/0/0 — LOCATION AND IDENTIFICATION OF PERMANENT REFERENCE POINTS
- ① — TRANSECT LINE NUMBER
- ○ PSC-22/A/2/200 — LOCATION AND IDENTIFICATION OF TEST POINT ON LEAD DELINEATION LINE
- ——— TRANSECT LINE
- – – – – ESTIMATED PRESUMED BOUNDARY OF POTENTIAL SHOT FALLOUT FOR SKEET RANGES
- BUILDING
- FILLED AREA

Golder Associates — JACKSONVILLE, FLORIDA

CLIENT/PROJECT: BWR/NAS JAX/FL

TITLE: LOCATIONS OF SURVEY POINTS

DRAWN: TRG	DATE: 11/25/97	JOB NO.: 973-3774	
CHECKED:	SCALE: AS SHOWN	DWG. NO.: 3774D	REV. NO.
REVIEWED:	FILE NO.: 973-3774	SUBTITLE	FIGURE NO.: 3



LEGEND

- ★ POINTS OF ORIGIN FOR TRANSECT LINES
- ø114 XRF TEST LOCATION AND LEAD CONCENTRATION (mg/kg)
- O 31 TEST LOCATION ON DELINEATED LEAD IMPACT LINE
- BPQL BELOW XRF PRACTICAL QUANTITATION LIMIT FOR LEAD
- 580 LABORATORY TEST LEAD CONCENTRATION (mg/kg)
- ——— DELINEATION OF LEAD IMPACTED SOIL (LEAD CONCENTRATION > 500 mg/kg) BASED ON XRF TESTING
- - - - - - - MODIFICATION TO DELINEATION OF LEAD IMPACTED SOIL BASED ON LABORATORY TEST RESULTS
- ——— ESTIMATED LIMITS OF ARSENIC IMPACTED SOIL (ARSENIC CONCENTRATION >0.7 mg/kg) BASED ON RELATIONSHIP BETWEEN LABORATORY LEAD AND ARSENIC CONCENTRATIONS
- — — — ESTIMATED PRESUMED BOUNDARY OF POTENTIAL SHOT FALLOUT FOR SKEET RANGES
- BUILDING
- FILLED AREA

Golder Associates JACKSONVILLE, FLORIDA

CLIENT/PROJECT: BWR/NAS JAX/FL

TITLE: XRF LEAD CONCENTRATIONS AND DELINEATED AREAS

DRAWN TRC	DATE 11/25/97	JOB NO. 973-3774	
CHECKED	SCALE AS SHOWN	DWG. NO. 3774C	REV. NO.
REVIEWED	FILE NO. 973-3774	SUBTITLE	FIGURE NO. 2

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

2846 Industrial Plaza Drive (32301) •P.O. Box 13056 •Tallahassee, FL 32317-3056 •(850) 878-3994 •Fax (850) 878-9504

LOG NO: T7-23065
Received: 01 NOV 97
Reported: 13 NOV 97

Mr. Mark Swallow
Golder Associates, Inc.
8933 Western Way, Suite 12
Jacksonville, FL 32256

Project: 973-3774/BWR/NAS
Sampled By: Client
Code: 115871117

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED
23065-1	BWR/NAS-EQBK	10-31-97/0910
23065-14	Trip Blank	

PARAMETER	23065-1	23065-14
ICP Metals (6010)		
Antimony, mg/l	<0.050	<0.050
Arsenic, mg/l	<0.010	<0.010
Lead, mg/l	<0.0050	<0.0050
Prep or Extraction Date	11.04.97	11.10.97
Date Analyzed	11.06.97	11.10.97

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

2846 Industrial Plaza Drive (32301) • P.O. Box 13056 • Tallahassee, FL 32317-3056 • (850) 878-3994 • Fax (850) 878-9504

LOG NO: T7-23065
Received: 01 NOV 97
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Mr. Mark Swallow
Golder Associates, Inc.
8933 Western Way, Suite 12
Jacksonville, FL 32256

Project: 973-3774/BWR/NAS
Sampled By: Client
Code: 115871117

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
23065-2	SS/PSC22/B/4/350'	10-31-97/0955
23065-3	SS/PSC22/B/1/165'	10-31-97/1010
23065-4	SS/PSC22/A/8/50;	10-31-97/1100
23065-5	SS/PSC22/A/6/400'	10-31-97/1200
23065-6	SS/PSC23/A/2/100'	10-31-97/1245

PARAMETER	23065-2	23065-3	23065-4	23065-5	23065-6
ICP Metals (6010)					
Antimony, mg/kg dw	<5.0	<5.0	5.0	<5.0	<5.0
Arsenic, mg/kg dw	<1.0	5.1	3.5	1.6	<1.0
Lead, mg/kg dw	580	1300	470	110	9.8
Prep or Extraction Date	11.05.97	11.05.97	11.05.97	11.05.97	11.05.97
Date Analyzed	11.11.97	11.11.97	11.11.97	11.11.97	11.11.97
Percent Solids, %	91	84	66	72	84

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LOG NO: T7-23065
Received: 01 NOV 97
Reported: 13 NOV 97

Mr. Mark Swallow
Golder Associates, Inc.
8933 Western Way, Suite 12
Jacksonville, FL 32256

Project: 973-3774/BWR/NAS
Sampled By: Client
Code: 115871117

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
23065-7	SS/PSC23/A/6/50'	10-31-97/1330

PARAMETER	23065-7
ICP Metals (6010)	
Antimony, mg/kg dw	<5.0
Arsenic, mg/kg dw	<1.0
Lead, mg/kg dw	150
Prep or Extraction Date	11.05.97
Date Analyzed	11.11.97
Percent Solids, %	92

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LOG NO: T7-23065
Received: 01 NOV 97
Reported: 13 NOV 97

Mr. Mark Swallow
Golder Associates, Inc.
8933 Western Way, Suite 12
Jacksonville, FL 32256

Project: 973-3774/BWR/NAS
Sampled By: Client
Code: 115871117

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
23065-8	Method Blank
23065-9	Accuracy (%Rec)
23065-10	Precision (%RPD)

PARAMETER	23065-8	23065-9	23065-10
ICP Metals (6010)			
Antimony, mg/l	<0.050	104 %	0.97 %
Arsenic, mg/l	<0.010	101 %	0 %
[illegible]d, mg/l	<0.0050	104 %	0.97 %
[illegible]p or Extraction Date	11.04.97	11.04.97	---
Date Analyzed	11.06.97	11.06.97	---

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& ENVIRONMENTAL SERVICES, INC.

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LOG NO: T7-23065
Received: 01 NOV 97
Reported: 13 NOV 97

Mr. Mark Swallow
Golder Associates, Inc.
8933 Western Way, Suite 12
Jacksonville, FL 32256

Project: 973-3774/BWR/NAS
Sampled By: Client
Code: 115871117

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID
23065-11	Method Blank
23065-12	Accuracy (%Rec)
23065-13	Precision (%RPD)

PARAMETER	23065-11	23065-12	23065-13
ICP Metals (6010)			
Antimony, mg/kg dw	<5.0	89 %	2.2 %
Arsenic, mg/kg dw	<1.0	98 %	0 %
Lead, mg/kg dw	<0.50	100 %	5.0 %
Prep or Extraction Date	11.05.97	11.05.97	---
Date Analyzed	11.10.97	11.10.97	---

Method: EPA SW-846
Florida Dept. of Health Certification No: E81005
FDEP CompQAP No. 890142G

Janet B. Pruitt, Project Manager

SL SAVANNAH LABORATORIES ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

☐ [redacted] LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax: [redacted] 352-0165
☐ [redacted] 46 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: [redacted] 878-9504
☐ 414 SW 12th Avenue, Deerfield Beach, FL 33442 — Phone: (305) 421-7400 — Fax: (305) 421-2584
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (205) 666-6633 — Fax: (205) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
BWR/NAS	973-3774	

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE	FAX
FL	G. Yonne M. Bruinsma	904 363-3430	904-363-3445

CLIENT NAME	CLIENT PROJECT MANAGER
Golder Associates	Mark Swallow

CLIENT ADDRESS (CITY, STATE, ZIP)

MATRIX TYPE: AQUEOUS (WATER) | SOLID OR SEMISOLID | AIR | NONAQUEOUS LIQUID (oil, solvent, etc.)

REQUIRED ANALYSES: Pb, Sb, As | Pb, Sb, As

PRESERVATIVE: HNO_3 | —

PAGE 1 OF 1

☒ STANDARD REPORT DELIVERY

☐ EXPEDITED REPORT DELIVERY (surcharge)

Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (oil, solvent, etc.)	NUMBER OF CONTAINERS SUBMITTED		REMARKS
10/31/97	0910		BWR-NAS-EQUIP	X				1		
10/31/97	0955		SS/PSC22/B/4/350'		X				1	
10/31/97	1010		SS/PSC22/B/1/165'		X				1	
10/31/97	1100		SS/PSC22/A/8/50'		X				1	
10/31/97	1200		SS/PSC22/A/6/400'		X				1	
10/31/97	1245		SS/PSC23/A/2/100'		X				1	
10/31/97	1330		SS/PSC23/A/6/50'		X				1	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	10/24/97	1600	[signature]	10/31/97	1700			
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	LABORATORY USE ONLY: CUSTODY INTACT	CUSTODY SEAL NO.	LABORATORY REMARKS
[signature]	11/1/97	1100			

ORIGINAL

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

2846 Industrial Plaza Drive (32301) • P.O. Box 13056 • Tallahassee, FL 32317-3056 • (850) 878-3994 • Fax (850) 878-9504

LOG NO: T7-23127
Received: 07 NOV 97
Reported: 20 NOV 97

Mr. Mark Swallow
Golder Associates, Inc.
8933 Western Way, Suite 12
Jacksonville, FL 32256

Project: 973-3774/BWR/NAS
Sampled By: Client
Code: 111571120

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED
23127-1	SS/PSC23B/2/100'	11-06-97/1530
23127-2	SS/PSC23B/3/250'	11-06-97/1600
23127-3	SS/PSC23B/5/200'	11-06-97/1645
23127-4	SS/PSC22A/4/300'	11-06-97/1745

PARAMETER	23127-1	23127-2	23127-3	23127-4
ICP Metals (6010)				
Antimony, mg/kg dw	<5.0	<5.0	<5.0	1200
Arsenic, mg/kg dw	<1.0	1.1	2.1	310
Lead, mg/kg dw	53	48	81	22000
Prep or Extraction Date	11.13.97	11.13.97	11.13.97	11.13.97
Date Analyzed	11.19.97	11.19.97	11.19.97	11.19.97
Percent Solids, %	93	79	71	82

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES. INC.

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LOG NO: T7-23127
Received: 07 NOV 97
Reported: 20 NOV 97

Mr. Mark Swallow
Golder Associates, Inc.
8933 Western Way, Suite 12
Jacksonville, FL 32256

Project: 973-3774/BWR/NAS
Sampled By: Client
Code: 111571120

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES
23127-5	Trip Blank

PARAMETER	23127-5
ICP Metals (6010)	
Antimony, mg/l	<0.050
Arsenic, mg/l	<0.010
Lead, mg/l	<0.0050
Prep or Extraction Date	11.11.97
Date Analyzed	11.14.97

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

846 Industrial Plaza Drive (32301) •P.O. Box 13056 •Tallahassee, FL 32317-3056 •(850) 878-3994 •Fax (850) 878-9504

LOG NO: T7-23127
Received: 07 NOV 97
Reported: 20 NOV 97

Mr. Mark Swallow
Golder Associates, Inc.
8933 Western Way, Suite 12
Jacksonville, FL 32256

Project: 973-3774/BWR/NAS
Sampled By: Client
Code: 111571120

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID
23127-6	Method Blank
23127-7	Accuracy (%Rec)
23127-8	Precision (%RPD)

PARAMETER	23127-6	23127-7	23127-8
ICP Metals (6010)			
Antimony, mg/kg dw	<5.0	100 %	1.0 %
Arsenic, mg/kg dw	<1.0	111 %	3.6 %
Lead, mg/kg dw	<0.50	112 %	0.89 %
Prep or Extraction Date	11.13.97	11.13.97	---
Date Analyzed	11.19.97	11.19.97	---

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

2846 Industrial Plaza Drive (32301) • P.O. Box 13056 • Tallahassee, FL 32317-3056 • (850) 878-3994 • Fax (850) 878-9504

LOG NO: T7-23127
Received: 07 NOV 97
Reported: 20 NOV 97

Mr. Mark Swallow
Golder Associates, Inc.
8933 Western Way, Suite 12
Jacksonville, FL 32256

Project: 973-3774/BWR/NAS
Sampled By: Client
Code: 134671120

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
23127-9	Method Blank
23127-10	Accuracy (%Rec)
23127-11	Precision (%RPD)

PARAMETER	23127-9	23127-10	23127-11
ICP Metals			
Antimony, mg/l	<0.050	102 %	0.98 %
Arsenic, mg/l	<0.010	98 %	1.0 %
Lead, mg/l	<0.0050	98 %	1.0 %
Prep or Extraction Date	11.11.97	11.11.97	---
Date Analyzed	11.14.97	11.14.97	---

Method: EPA 40 CFR Part 136; EPA SW-846
Florida Dept. of Health Certification No: E81005
FDEP CompQAP No. 890142G

Elizabeth L. Schneide
Janet B. Pruitt, Project Manager

Final Page Of Report

Ser nber

SL AVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

☐ 2 LaRoche Avenue, Savannah, GA 31404 — Phone: (912) 354-7858 — Fax: (912) 352-0165
☒ 2846 Industrial Plaza Drive, Tallahassee, FL 32301 — Phone: (904) 878-3994 — Fax: (904) 878-9504
☐ 414 SW 12th Avenue, Deerfield Beach, FL 33442 — Phone: (305) 421-7400 — Fax: (305) 421-2584
☐ 900 Lakeside Drive, Mobile, AL 36693 — Phone: (205) 666-6633 — Fax: (205) 666-6696
☐ 6712 Benjamin Road, Suite 100, Tampa, FL 33634 — Phone: (813) 885-7427 — Fax: (813) 885-7049
☐ 100 Alpha Drive, Suite 110, Destrehan, LA 70047 — Phone: (504) 764-1100 — Fax: (504) 725-1163

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
BWR/NAS JAX	973-3774	

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE	FAX
FL.	GARY YOUNG	(904) 363-3430	363-3445

CLIENT NAME	CLIENT PROJECT MANAGER
GOLDER ASSOCIATES	MARK SUTTON

CLIENT ADDRESS (CITY, STATE, ZIP): 8933 WESTERN WAY #12 JAX. FL, 32256

MATRIX TYPE: AQUEOUS (WATER) | SOLID OR SEMISOLID | AIR | NONAQUEOUS LIQUID (oil, solvent, etc)

REQUIRED ANALYSES: Pb, Sb, As — PRESERVATIVE

PAGE 1 OF 1

☒ STANDARD REPORT DELIVERY
☐ EXPEDITED REPORT DELIVERY (surcharge)
Date Due: _____

SAMPLE DATE	SAMPLE TIME	SL NO.	SAMPLE IDENTIFICATION	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (oil, solvent, etc)	NUMBER OF CONTAINERS SUBMITTED	REMARKS
11/6/97	1530		SS/PSC23B/2/100'		X			1	
11/6/97	1600		SS/PSC23B/3/250'		X			1	
11/6/97	1645		SS/PSC23B/5/200'		X			1	
11/6/97	1745		SS/PSC22A/4/200'		X			1	
11/6/97	1870		FB/TRIP BLANK	X				1	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
	11/4/97	1730		11/6/97	1830			
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.'S	SL LOG NO.	LABORATORY REMARKS
			☐ YES ☐ NO			

ORIGINAL